

Snake River Spring Chinook Salmon Fishery Report, 2003

**by Jeremy Trump and Glen Mendel, WDFW
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The Snake River recreational spring chinook fishery opened April 26 through May 31, and was then extended through June 15, 2003. The area opened for fishing was from the Texas Rapids boat launch upstream to the Corps of Engineers boat launch (approximately one mile) upstream of Little Goose Dam on the south bank of the river. The preseason estimated harvest target of 700 hatchery adult spring chinook was set, with an allowable Endangered Species Act (ESA) impact set at 75 wild fish mortalities. Assuming a 10% mortality rate on released fish, this allowed for 750 wild adult encounters. Fishing was opened for a seven day per week fishery, with daily hours set from one hour before sunrise to one hour after sunset. The daily limit for the original season consisted of one hatchery (adipose fin-clipped) spring chinook salmon (adult or jack) per day, with a minimum size of 12 inches. In-season tracking of the upriver spring chinook return and estimates of harvest in lower river fisheries indicated a larger than predicted return, allowing for an extension of the originally adopted season. During the extension from June 1 to June 15, the daily limit was increased to two hatchery fish per day, with a minimum size of 12 inches. Anglers were required to use barbless hooks, with no more than 5/8 inch from point to shank throughout the fishery.

The Washington Department of Fish and Wildlife monitored the fishery using a roving creel survey which included; boat ramp and shore interviews to collect catch rate, completed trip and biological information, and effort counts of shore and boat anglers and the number of boats (counts at least five times a day). Monitoring was conducted at least one weekday and one weekend day per 7 day period, utilizing a dawn to dusk survey format. Creel surveys were conducted on 20 days (8 weekend days and 12 weekdays) of the season. Of the 51 day season, 34 weekdays and 17 weekend days were available (this included Monday May 26th as a weekend day, since it was a holiday). This gave us a sample rate of 47 % of weekend days and 35% of weekdays. Survey data was summarized weekly to assure compliance with the harvest target and ESA impact level that had been set for the fishery.

Interviews were conducted with 2,298 anglers with a total of 6,374.67 hours of fishing effort, but only 2,119 of these anglers were targeting spring chinook (5,854.44 angler hours). Other anglers interviewed were targeting catfish, smallmouth bass, sturgeon, and northern pikeminnow. Data collected during the creel surveys was entered into a spreadsheet that was used to calculate angler hours, total fish harvested, catch rate (hours/fish harvested and hours/fish caught), total fish released, release rate (hours/fish released), and fish size (min, max, and mean) (Table 1).

Table 1. Data summaries from Snake River spring chinook fishery angler interviews, 2003.

			Catch Rate		Chinook Released	Release Rate	Harvested Fish Size Fork Length (cm)		
	Angler Hours	Chinook Harvested	Hrs/Chinook Harvested	Hrs/Chinook Caught		Hrs/Chinook Released	Min	Max	Mean
Weekday Shore	2,831.49	100	28.315	14.747	92	30.777	41	101.5	68.0
Weekday Boat	183.73	1	183.730	45.933	3	61.243	90.5	90.5	90.5
Weekend Shore	2,695.39	80	33.692	17.503	74	36.424	41	112	74.0
Weekend Boat	132.15	2	66.075	22.025	4	33.038	75.5	89	82.3
Total	5,854.44	183	31.991	16.445	173	33.840	41	112	70.7

Creel data summaries showed that 183 spring chinook were harvested and 174 spring chinook were released. Fishery regulations identified that jacks were <24 inches or 61 cm total length. Since our measurements were in fork length, we calculated that jacks were <57cm. Of the 183 hatchery chinook kept, 172 were sampled, consisting of 111 (64.5%) adults and 61 (35.5%) jacks. Interviews documented that 158 of the chinook were released; comprised of 80 (50.6%) wild adults, 40 (25.3%) wild jacks, 4 (2.5%) hatchery adults, and 34 (21.5%) hatchery jacks.

During interviews we recorded 183 spring chinook that were harvested. Fishery regulations called for harvest of hatchery adipose (Ad) clipped chinook. We confirmed that 93 adults and 65 jacks had “Ad” clips and one jack had an “AdLV” clip. The other 24 fish caught were either not seen by the creel clerk or the data were incomplete (size or mark type, Table 2). We also recovered 13 coded wire tags and 4 jaw tags, and were given a pit tag by an angler that found it in his fish on a day that we did not conduct a creel survey (Table 3).

Table 2. Mark types seen during Snake River spring chinook creel surveys, 2003.

Marks	Adults	Jacks	Unknown	Total
Ad	93	65	11	169
AdLV	0	1	0	1
Unknown	11	0	2	13
Totals	104	66	13	183

Tag Type ^a	Tag Code	Date	Length	Other Marks	Release Location	Stock
CWT	103610 ^b	05/01/03	86	Ad	N/A	N/A
CWT	103611 ^b	05/06/03	75	Ad	N/A	N/A
CWT	103612 ^b	05/06/03	77.5	Ad	N/A	N/A
CWT	105418	05/10/03	89	Ad	Powell Rearing Ponds	Powell
CWT	103613 ^b	05/14/03	74	Ad	N/A	N/A
CWT	093211	05/14/03	74	Ad	Little Sheep Ck (Imnaha River)	Imnaha River & Tributaries
CWT	104570	05/24/03	82	Ad	S.F. Salmon River @ Knox Bridge	S.F. Salmon
CWT	093439 ^b	06/05/03	54	Ad	N/A	N/A
CWT	093103	06/08/03	84	Ad	Lostine River	Lostine River Endemic
CWT	105508	06/08/03	96	Ad	S.F. Salmon River @ Knox Bridge	S.F. Salmon
CWT	104770	06/13/03	82	Ad	S.F. Salmon River @ Knox Bridge	S.F. Salmon
CWT	104470	06/13/03	73	Ad	S.F. Salmon River @ Knox Bridge	S.F. Salmon
CWT	108471	06/13/03	54	Ad	S.F. Salmon River @ Knox Bridge	S.F. Salmon
Jaw	Red tag #04910	05/10/03	84	Ad		
Jaw	Yellow tag #04367	05/13/03	84	Ad		
Jaw	Red tag #05158	05/18/03	N/A	Ad		
Jaw	Red tag #05630	05/23/03	95	Ad		
PIT	3D9.1BF0FA4F7D	06/07/03	N/A	N/A		

^a CWT=coded wire tag, Jaw=jaw tag, PIT=pit tag
^b Tags have not been verified, and are not listed in the online database.

Total calculated angler effort for the season was 27,558 hours. Effort was calculated by using the following formula:

$$\text{Effort} = \# \text{ of hours/day} \times \# \text{ of days available} \times \text{average} \# \text{ of anglers (from the counts).}$$

This was calculated separately for each day type (weekend or weekday) and angler type (boat or shore). We used 15 hours/day as the available fishing time (# of hours/day) for the whole season. Since the data were stratified by weekend or weekday and boat or shore we first calculated effort in these categories and then summed them to get the total effort (Table 4, Appendix A). Due to a miscommunication with our creel clerks we could only use four of the 20 survey days to calculate the number of hours in a completed angler day. However, the calculation of 4.95 hrs/day is close to that of the previous two years of spring chinook fishing and is also comparable to other creel surveys of salmonids (steelhead) in the area. Dividing effort by the hours in a completed angler day provides the number of angler days for the season (Table 4).

Table 4. Calculated expanded effort^a for the Snake River spring chinook fishery, 2003.

	Number of Fishing Days	Average Number of Anglers/Day	Angler Effort (hrs)	Angler Days
Weekday Shore	34	25.5085	13,009.32	1,974
Weekday Boat	34	5.1864	2,645.08	431
Weekend Shore	17	38.3171	9,770.85	2,628
Weekend Boat	17	8.3659	2,133.29	534
Total			27,559	5,567

^a We used 15 hours as the available fishing day length even though by June 1, daylight was from 5 a.m. to 9 p.m. Shore anglers could not access the “Wall” at Little Goose Dam until 6 a.m. by Corp of Engineers rules. Our angler counts ranged from 6:30 a.m. to 8:30 p.m.

Angler interview information (Table 1) and count data were expanded to estimate total harvest, the number of fish released and angler effort for the fishery. By multiplying harvest and release rates and angler effort we estimated that 796 spring chinook were harvested and 799 spring chinook were released. Multiplying the original estimates by the proportions of sampled adults and jacks enabled us to estimate the number of adults and jacks harvested, as well as the number of wild adults and jacks and hatchery adults and jacks released (Table 5). Due to a rounding error the total of fish released in Table 2 has a total of 800 fish compared to the 799 originally estimated. By applying a 10% mortality rate to the number of wild adults released we estimate that our ESA impact level was a total of 41 adult spring chinook. Well below the allowable impact of 75 wild adults.

Table 5. Estimated number of spring chinook harvested and released during the Snake River fishery, 2003.

	Estimated Number of Fish Harvested			Estimated Number of Fish Released				
	Adults	Jacks	Total	Wild Adults	Wild Jacks	Hatchery Adults	Hatchery Jacks	Total
Weekday Shore	296	163	459	214	107	11	91	423
Weekday Boat	9	5	14	22	11	1	9	43
Weekend Shore	187	103	290	136	68	7	58	269
Weekend Boat	21	11	32	33	16	2	14	65
Totals	513	282	795	405	202	21	172	800

Appendix A. Angler effort and harvest of spring chinook on the Snake River, 2003.

																				Totals			
				Count			Daily Averages			Average Catch Rates		Average Release Rates		Angler Effort		Harvest of Chinook		Release of Chinook		Adult Chinook			
Month	Day	Day Type	Time	Number of Shore Anglers	Number of Boats	Number of Boat Anglers	Shore Anglers	Boats	Boat Anglers	Shore Anglers	Boat Anglers	Shore Anglers	Boat Anglers	Shore	Boat	Shore	Boat	Shore	Boat	Effort (hrs)	Harvested	Released	
4	26	WE	7:00	87	8	11																	
			9:30	80	2	4																	
			12:30	82	1	2																	
			16:00	41	4	8																	
			19:00	20	4	8																	
5	4	WE	7:00	71	10	19																	
			9:30	89	12	24																	
			12:30	87	12	25																	
			16:30	45	0	0																	
			19:00	4	0	0																	
5	10	WE	7:00	71	12	24																	
			9:30	57	14	29																	
			12:30	46	6	11																	
			17:00	19	2	4																	
			19:00	8	1	2																	
5	18	WE	7:05	60	2	3																	
			9:30	51	2	4																	
			12:30	47	1	2																	
			17:00	10	0	0																	
			19:00	0	1	2																	
5	24	WE	7:10	74	9	21																	
			9:30	55	10	20																	
			12:30	36	6	14																	
			17:00	31	9	14																	
			19:00	20	3	3																	
5	31	WE	7:00	22	1	2																	
			9:30	11	3	4																	
			12:30	17	1	3																	
			17:00	18	2	2																	
			19:00	13	0	0																	
6	8	WE	7:00	26	3	5																	
			10:30	35	2	2																	
			13:00	17	3	4																	
			15:30	21	9	9																	
			18:00	5	7	7																	
			20:30	0	0	0																	
6	14	WE	6:30	44	5	10																	
			9:30	51	8	16																	
			12:30	42	6	12																	
			15:30	39	2	3																	
			19:00	19	4	10																	
Weekend Totals				1,571	187	343	38.3171	4.5610	8.3659	33.692	66.075	36.424	33.038	9,770.85	2,133.29	290.0	32.3	268.3	64.6	1,1904.1	322	333	

Appendix A. Continued. Angler effort and harvest of spring chinook on the Snake River, 2003.																				Totals			
				Count			Daily Averages			Average Catch Rates		Average Release Rates		Angler Effort		Harvest of Chinook		Release of Chinook		Adult Chinook			
Month	Day	Day Type	Time	Number of Shore Anglers	Number of Boats	Number of Boat Anglers	Shore Anglers	Boats	Boat Anglers	Shore Anglers	Boat Anglers	Shore Anglers	Boat Anglers	Shore	Boat	Shore	Boat	Shore	Boat	Effort (hrs)	Harvested	Released	
6	5	WD	7:00	6	4	9																	
			10:00	16	4	5																	
			13:00	14	3	4																	
			16:00	10	1	1																	
			17:45	4	1	1																	
6	11	WD	6:30	20	1	2																	
			9:30	15	1	2																	
			12:30	16	2	4																	
			15:30	21	3	4																	
			19:00	3	1	1																	
6	13	WD	7:30	39	6	9																	
			10:30	39	4	7																	
			13:30	30	2	3																	
			16:30	20	5	8																	
			20:00	11	0	0																	
Weekday Totals				1,505	163	306	25.5085	2.7627	5.1864	28.315	183.730	30.777	61.243	13,009.32	2,645.08	459.4	14.4	422.7	43.2	15,654.4	474	466	
Season Totals				3,076	350	649								22,780	4,778	749	47	691	108	27,559	796	799	